

WHAT IS CLAIMED IS:

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1. An information processing apparatus
comprising:

a detector that detects a recording medium;
a recording-medium starting section that
10 activates the recording medium detected by said detector
to be in an accessible state; and
a program starting section that performs an
authentication check on said recording medium, reads a
program from said recording medium when a result of the
15 authentication check is normal, and starts an execution
of said program.

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2. The information processing apparatus as
claimed in claim 1, wherein said program starting
section reads a file used for the authentication check
from said recording medium set in the accessible state
by said recording-medium starting section so as to
25 perform the authentication check by using said file.

3. The information processing apparatus as
claimed in claim 1, wherein said program starting
section performs both the authentication check on a
setting file recorded on said recording medium and the
5 authentication check on a program to be read.

10 4. The information processing apparatus as
claimed in claim 3, wherein the authentication check on
said setting file is performed using an electronic
signature produced from the setting file and
identification information of said recording medium.

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5. The information processing apparatus as
20 claimed in claim 4, wherein the authentication check on
said setting file is performed based on a comparison
between a first message and a second message, the first
message being based on the setting file and the
identification information of said recording medium, the
25 second message being a decrypted electronic signature

produced from the setting file and the identification information of said recording medium.

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6. The information processing apparatus as claimed in claim 3, wherein the authentication check on said program to be read is performed using
10 identification information of said information processing apparatus and an electronic signature produced from the program to be read.

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7. The information processing apparatus as claimed in claim 6, wherein the authentication check on said setting file is performed based on a comparison between a first message and a second message, the first
20 message being based on the program to be read and the identification information of said information processing apparatus, the second message being a decrypted electronic signature produced from the program to be read and the identification information of said
25 information processing apparatus.

8. The information processing apparatus as claimed in claim 3, wherein functions of a program started in accordance with a result of the authentication check on the program to be read are notified to an operator as available programs.

10 9. The information processing apparatus as claimed in claim 1, wherein said detection means includes a slot into which the recording medium is insertable, and further comprises status monitoring means for monitoring a plug and play of said recording medium with respect to said slot.

20 10. An information processing apparatus comprising:
detection means for detecting a recording medium;
recording-medium starting means for activating
25 the recording medium detected by said detection means to

be in an accessible state; and

program starting means for performing an authentication check on said recording medium, reading a program from said recording medium when a result of the authentication check is normal, and starting an execution of said program.

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11. The information processing apparatus as claimed in claim 1, wherein said program starting means reads a file used for the authentication check from said recording medium set in the accessible state by said recording-medium starting means so as to perform the authentication check by using said file.

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12. The information processing apparatus as claimed in claim 10, wherein said program starting means performs both the authentication check on a setting file recorded on said recording medium and the authentication check on a program to be read.

13. The information processing apparatus as
claimed in claim 12, wherein the authentication check on
said setting file is performed using an electronic
signature produced from a setting file and
5 identification information of said recording medium.

10 14. The information processing apparatus as
claimed in claim 13, wherein the authentication check on
said setting file is performed based on a comparison
between a first message and a second message, the first
message being based on the setting file and the
15 identification information of said recording medium, the
second message being a decrypted electronic signature
produced from the setting file and the identification
information of said recording medium.

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15. The information processing apparatus as
claimed in claim 14, wherein the authentication check on
25 said program to be read is performed using

identification information of said information processing apparatus and an electronic signature produced from the program to be read.

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16. The information processing apparatus as claimed in claim 15, wherein the authentication check on
10 said setting file is performed based on a comparison between a first message and a second message, the first message being based on the program to be read and the identification information of said information processing apparatus, the second message being a
15 decrypted electronic signature produced from the program to be read and the identification information of said information processing apparatus.

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17. The information processing apparatus as claimed in claim 12, wherein functions of a program started in accordance with a result of the authentication check on the program to be read are
25 notified to an operator as available programs.

18. The information processing apparatus as
claimed in claim 10, wherein said detection means
includes a slot into which a recording medium is
insertable, and further comprises status monitoring
5 means for monitoring a plug and play of said recording
medium with respect to said slot.

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19. An image forming apparatus comprising:
a detector that detects a recording medium;
a recording-medium starting section that
activates the recording medium detected by said detector
15 to be in an accessible state; and
a program starting section that performs an
authentication check on said recording medium, reads a
program relating to an image formation from said
recording medium when a result of the authentication
20 check is normal, and starts an execution of said program.

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20. The image forming apparatus as claimed in claim 19, wherein said program starting section reads a file used for the authentication check from said recording medium set in the accessible state by said recording-medium starting section so as to perform the authentication check by using said file.

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21. The image forming apparatus as claimed in claim 19, wherein said program starting section performs both the authentication check on a setting file recorded on said recording medium and the authentication check on a program to be read.

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22. The image forming apparatus as claimed in claim 21, wherein the authentication check on said setting file is performed using an electronic signature produced from the setting file and identification information of said recording medium.

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23. The image forming apparatus as claimed in claim 22, wherein the authentication check on said setting file is performed based on a comparison between a first message and a second message, the first message
5 being based on the setting file and the identification information of said recording medium, the second message being a decrypted electronic signature produced from the setting file and the identification information of said recording medium.

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24. The information processing apparatus as
15 claimed in claim 21, wherein the authentication check on said program to be read is performed using identification information of said image forming apparatus and an electronic signature produced from the program to be read.

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25. The information processing apparatus as
25 claimed in claim 24, wherein the authentication check on

said setting file is performed based on a comparison between a first message and a second message, the first message being based on the program to be read and the identification information of said image forming

5 apparatus, the second message being a decrypted electronic signature produced from the program to be read and the identification information of said image forming apparatus.

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26. The image forming apparatus as claimed in claim 21, wherein functions of a program started in accordance with a result of the authentication check on the program to be read are notified to an operator as available programs.

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27. The image forming apparatus as claimed in claim 19, wherein said detection means includes a slot into which the recording medium is insertable, and further comprises status monitoring means for monitoring

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a plug and play of said recording medium with respect to said slot.

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28. The image forming apparatus as claimed in claim 19, further comprising:

hardware resources used in an image forming
10 process;

programs performing a process relating to the image formation; and

a platform provided between said hardware resources and said programs so as to manage the hardware
15 resources that are commonly used by at least tow of said programs.

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29. An image forming apparatus comprising:
detection means for detecting a recording
medium;

recording-medium starting means for activating
25 the recording medium detected by said detection means to

be in an accessible state; and

program starting means for performing an authentication check on said recording medium, reading a program relating to an image formation from said
5 recording medium when a result of the authentication check is normal, and starting an execution of said program.

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30. The image forming apparatus as claimed in claim 29, wherein said program starting means reads a file used for the authentication check from said
15 recording medium set in the accessible state by said recording-medium starting means so as to perform the authentication check by using said file.

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31. The image forming apparatus as claimed in claim 30, wherein said program starting means performs both the authentication check on a setting file recorded on said recording medium and the authentication check on
25 a program to be read.

32. The image forming apparatus as claimed in claim 31, wherein the authentication check on said setting file is performed using an electronic signature produced from a setting file and identification
5 information of said recording medium.

10 33. The image forming apparatus as claimed in claim 32, wherein the authentication check on said setting file is performed based on a comparison between a first message and a second message, the first message being based on the setting file and the identification
15 information of said recording medium, the second message being a decrypted electronic signature produced from the setting file and the identification information of said recording medium.

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34. The image forming apparatus as claimed in claim 33, wherein the authentication check on said
25 program to be read is performed using identification

information of said information processing apparatus and an electronic signature produced from the program to be read.

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35. The image forming apparatus as claimed in claim 34, wherein the authentication check on said
10 setting file is performed based on a comparison between a first message and a second message, the first message being based on the program to be read and the identification information of said image forming apparatus, the second message being a decrypted
15 electronic signature produced from the program to be read and the identification information of said image forming apparatus.

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36. The image forming apparatus as claimed in claim 31, wherein functions of a program started in accordance with a result of the authentication check on the program to be read are notified to an operator as
25 available programs.

37. The image forming apparatus as claimed in claim 29, wherein said detection means includes a slot into which a recording medium is insertable, and further comprises status monitoring means for monitoring a plug
5 and play of said recording medium with respect to said slot.

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38. The image forming apparatus as claimed in claim 29, further comprising:

hardware resources used in an image forming process;

15 programs performing a process relating to the image formation; and

a platform provide between said hardware resources and said programs so as to manage the hardware resources that are commonly used by at least tow of said
20 programs.

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39. A program starting method comprising:

detecting a recording medium;

activating the detected recording medium to be
in an accessible state; and

5 performing an authentication check on said
recording medium, reading a program from said recording
medium when a result of the authentication check is
normal, and starting an execution of said program.

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40. A recording medium used with an

information processing apparatus capable of detecting

15 the recording medium when loaded thereto, the recording
medium storing at least one program that is read by said
information processing apparatus and starting the read
program when a result of an authentication check on the
read program is normal after said recording medium is
20 detected and activated to be in an accessible state and
the authentication check is performed.

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41. The recording medium as claimed in claim 40, wherein said information processing apparatus has a slot into which the recording medium is insertable, and the recording medium is arranged to be loaded to said information processing apparatus in a plug and play manner.

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42. A recording-medium producing method of producing a recording medium that stores a starting program which an information processing apparatus is caused to start, the recording-medium producing method comprising:

producing license information using identification information of said recording medium; and recording the produced license information and the starting program on said recording medium.

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43. The recording-medium producing method as claimed in claim 42, wherein said step of producing

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produces the starting program using the identification
information of said information processing apparatus..

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44. The recording-medium producing method as
claimed in claim 42, wherein said step of producing
produces the license information further using
10 identification information of said recording medium and
effective program information usable by said information
processing apparatus.

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45. The recording-medium producing method as
claimed in claim 43, wherein said step of producing
produces the starting program using the identification
20 information of said information processing apparatus and
a program which said information processing apparatus is
caused to start.

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46. The recording-medium producing method as
claimed in claim 44, wherein said step of producing
produces a first electronic signature from the
identification information of said recording medium and
5 the effective program information, and, then, produces
the license information based on the effective program
information and the first electronic signature.

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47. The recording-medium producing method as
claimed in claim 45, wherein said step of producing
produces a second electronic signature from the
15 identification information of said information
processing apparatus and the program, and, then,
produces the starting program based on the
identification information of said information
processing apparatus, the program and the second
20 electronic signature.

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48. The recording-medium producing method as claimed in claim 46, wherein the first electronic signature is used for an authentication check on the effective program information.

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49. The recording-medium producing method as claimed in claim 47, wherein the second electronic signature is used for an authentication check on the program.

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50. The recording-medium producing method as claimed in claim 42, wherein said step of recording records on the recording medium at least one starting program and at least one piece of license information corresponding to the starting program on one-to-one basis.

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51. The recording-medium producing method as
claimed in claim 42, wherein said step of recording
records on the recording medium a plurality of starting
programs and one piece of license information
5 corresponding to the starting programs on one-to-one
basis.

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52. The recording-medium producing method as
claimed in claim 42, wherein said recording medium
conforms to a plug and play.

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53. The recording-medium producing method as
claimed in claim 42, wherein said information processing
20 apparatus is an image forming apparatus.

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54. A recording-medium producing method of
producing an updating recording medium for updating a
starting recording medium that stores a starting program
to start an information processing apparatus, the
5 recording-medium producing method comprising:
producing an updating program for updating a
program which said information processing apparatus is
caused to start; and
recording the produced updating program on
10 said updating recording-medium.

15 55. The recording-medium producing method as
claimed in claim 54, wherein the step of producing
produces the updating program using identification
information of said information processing apparatus and
a second program which updates a first program which
20 said information processing apparatus is caused to start.

56. The recording-medium producing method as claimed in claim 55, wherein the step of producing produces an electronic signature from the identification information of said information processing apparatus and
5 said second program, and, then, produces the updating program based on the identification information of said information processing apparatus, the second program and the electronic signature.

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57. The recording-medium producing method as claimed in claim 56, wherein the electronic signature is
15 used for an authentication check on the second program.

20 58. The recording-medium producing method as claimed in claim 54, wherein the recording medium conforms to a plug and play.

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59. The recording-medium producing method as claimed in claim 54, wherein said information processing apparatus is an image forming apparatus.

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60. A recording-medium producing apparatus of producing a starting recording medium that stores a
10 program which an information processing apparatus is caused to start, comprising:

a license information creation section that produces license information using identification information of said recording medium; and

15 a recording section that records the produced license information and the program for starting on the starting recording medium.

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61. A recording-medium producing apparatus for producing a starting recording medium that stores a program which an information processing apparatus is
25 caused to start, comprising:

producing means for producing license
information using identification information of said
recording medium; and

recording means for recording the produced
5 license information and the program for starting on the
starting recording medium.

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62. A recording-medium producing apparatus of
producing a starting recording medium that stores a
program which an information processing apparatus is
caused to start, comprising:

15 a license information creation section that
produces license information using identification
information of said recording medium; and

a sending section that sends the produced
license information and the program for starting to a
20 recording section that records the produced license
information and the program for starting on the starting
recording medium.

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63. A recording-medium producing apparatus for producing a starting recording medium that stores a program which an information processing apparatus is caused to start, comprising:

5 producing means for producing license information using identification information of said recording medium; and

 sending means for sending the license information and a program for starting to recording
10 means for recording the produced license information and the program for starting on the starting recording medium.

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64. A recording-medium producing apparatus of producing an updating recording medium for updating a starting recording medium that stores a program which an
20 information processing apparatus is caused to start, comprising:

 an updating program creation section that produced an updating program that updates a program, which said information processing apparatus is caused to
25 start, using identification information of said

information processing apparatus; and

a recording section that records the produced
updating program on the starting recording medium.

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65. A recording-medium producing apparatus
for producing an updating recording medium for updating
10 a starting recording medium that stores a program which
an information processing apparatus is caused to start,
comprising:

producing means for producing an updating
program that updates a program, which said information
15 processing apparatus is caused to start, using
identification information of said information
processing apparatus; and

recording means for recording the produced
updating program on the starting recording medium.

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66. A recording-medium producing apparatus of
25 producing an updating recording medium for updating a

starting recording medium that stores a program which an information processing apparatus is cause to start, comprising:

an updating program creation section that
5 produced an updating program that updates a program, which said information processing apparatus is caused to start, using identification information of said information processing apparatus; and

a sending section that sends the updating
10 program to a recording section that records the produced updating program on the starting recording medium.

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67. A recording-medium producing apparatus for producing an updating recording medium for updating a starting recording medium that stores a program which an information processing apparatus is cause to start, comprising:
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producing means for producing an updating program that updates a program, which said information processing apparatus is caused to start, using identification information of said information
25 processing apparatus; and

sending means for sending the updating program
to recording means for recording the produced updating
program on the starting recording medium.

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68. A recording-medium producing system of
producing a starting recording medium that stores a
10 program which an information processing apparatus is
caused to start, comprising:

a license information creation section that
produces license information of said starting recording
medium using identification information of said starting
15 recording medium; and

a recording section that records the produced
license information and the program for starting on said
starting recording medium,

wherein said license information creation
20 section and said recording section are connected to each
other via a predetermined network.

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69. A recording-medium producing system for producing a starting recording medium that stores a program which an information processing apparatus is caused to start, comprising:

5 producing means for producing license information of said starting recording medium using identification information of said starting recording medium; and

 recording means for recording the produced
10 license information and the program for starting on said starting recording medium,

 wherein said producing means and said recording means are connected to each other via a predetermined network.

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70. A recording-medium producing system of
20 producing an updating recording medium for updating a starting recording medium that stores a program which an information processing apparatus is caused to start, comprising:

 an updating program creation section that
25 produced the updating program using identification

information of said information processing apparatus;
and

a recording section that records the produced
updating program on said updating recording medium,

5 wherein said updating program creation section
and said recording section are connected to each other
via a predetermined network.

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71. A recording-medium producing system for
producing an updating recording medium for updating a
starting recording medium that stores a program which an
15 information processing apparatus is caused to start,
comprising:

producing means for producing the updating
program using identification information of said
information processing apparatus; and

20 recording means for recording the produced
updating program on said updating recording medium,

wherein said producing means and said
recording means are connected to each other via a
predetermined network.

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72. A recording medium for storing at least one program which an information processing apparatus is caused to start, wherein the recording medium stores license information produced using identification information of said recording medium and a starting program produced based on the identification information of said information processing apparatus and the program which said information processing apparatus is caused to start.

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73. The recording medium as claimed in claim 72, wherein the license information is produced based on a first electronic signature and effective program list that indicates programs usable by said information processing apparatus, the first signature being produced from the identification information of said recording medium and the effective program list.

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74. The recording medium as claimed in claim
72, wherein the starting program is produced based on a
second electronic signature, the identification
information of said information processing apparatus and
5 the program which said information processing apparatus
is caused to start, said second electronic signature
being produced from the identification information of
said information processing apparatus and the program
which said information processing apparatus is caused to
10 start.

15 75. The recording medium as claimed in claim
72, wherein said recording medium conforms to a plug and
play.

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76. A recording medium for updating a
starting recording medium that stores a program which an
information processing apparatus is caused to start, the
25 recording medium stores identification information of

said information processing apparatus and an updating program that updates a program which said information processing apparatus is caused to start.

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77. The recording medium as claimed in claim 76, wherein said updating program is produced based on an electronic signature, the identification information of said information processing apparatus and a second program, the electronic signature being produced from the identification information of said information processing apparatus and a second program that updates a first program which said information processing apparatus is caused to start.

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78. The recording medium as claimed in claim 76, wherein said recording medium conforms to a plug and play.

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